



RTD Converter LB5101A

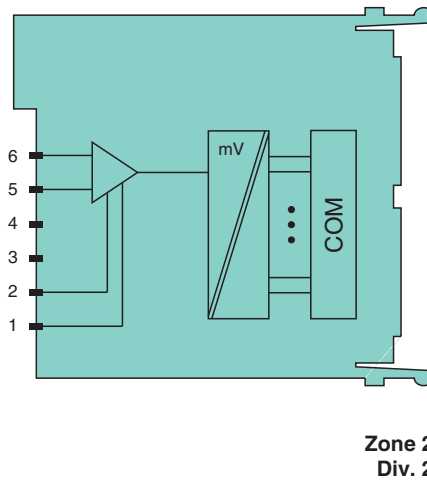
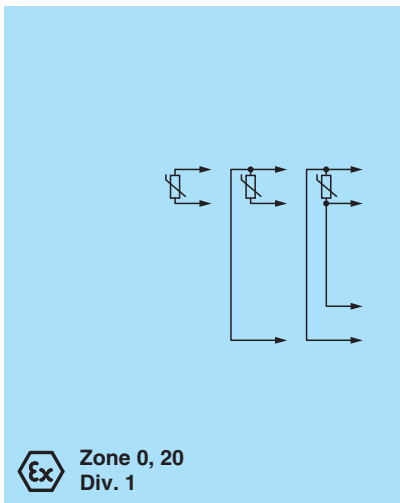
- 1-channel
- Input Ex ia
- Mounting in Zone 2, Class I/Div.2 or in the safe area
- Converter for 2-, 3- and 4-wire Pt100, slide wire sensors
- Simulation mode for service operations (forcing)
- Line fault detection (LFD)
- Permanently self-monitoring
- Module can be exchanged under voltage



Function

The RTD converter accepts 2-, 3-, 4-wire RTD signals (Pt100) from the hazardous area. Open and short-circuit line faults are detected. The intrinsically safe input is galvanically isolated from the bus and the power supply.

Connection



Technical Data

| | |
|--------------------------|---|
| Slots | |
| Occupied slots | 1 |
| Supply | |
| Connection | backplane bus |
| Rated voltage | U_r 12 V DC , only in connection with the power supplies LB9*** |
| Power dissipation | 0.4 W |
| Power consumption | 0.4 W |
| Internal bus | |
| Connection | backplane bus |
| Interface | manufacturer-specific bus to standard com unit |
| temperature input | |
| Number of channels | 1 |
| Suitable field devices | |

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Refer to "General Notes Relating to Pepperl+Fuchs Product Information".

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Technical Data

| | |
|----------------------------------|--|
| Field device | resistance thermometer |
| Field device [3] | slide-wire sensors |
| Field device interface | |
| Connection | 2-wire sensor |
| Connection [2] | 3-wire sensor |
| Connection [3] | 4-wire sensor |
| Connection | 2-wire connection: 5, 6 3-wire connection: 1, 5, 6 4-wire connection: 1, 2, 5, 6 |
| Measurement range | 10 ... 400 Ω (500 Ω incl. line resistance) |
| Slide-wire sensor | 10 ... 400 Ω |
| Measuring current | 200 μA |
| Smallest span | 20 Ω for 0.1 % accuracy |
| Linearity error | 0.1 % |
| Conversion time | max. 20 ms without LFD max. 150 ms with LFD |
| Lead resistance | max. 50 Ω per strand |
| Line fault detection | can be switched on/off for each channel via configuration tool |
| Short-circuit | < 10 Ω |
| Open-circuit | > 1 kΩ |
| Transfer characteristics | |
| Deviation | |
| Influence of ambient temperature | max. 0,1 %/10 K |
| Indicators/settings | |
| LED indication | Power LED (P) green: supply Status LED (1) red: line fault |
| Coding | optional mechanical coding via front socket |
| Directive conformity | |
| Electromagnetic compatibility | |
| Directive 2014/30/EU | EN 61326-1:2013 |
| Conformity | |
| Electromagnetic compatibility | |
| Degree of protection | IEC 60529 |
| Environmental test | EN 60068-2-14 |
| Shock resistance | EN 60068-2-27 |
| Vibration resistance | EN 60068-2-6 |
| Damaging gas | EN 60068-2-42 |
| Relative humidity | EN 60068-2-78 |
| Ambient conditions | |
| Ambient temperature | -40 ... 60 °C (-40 ... 140 °F) |
| Storage temperature | -40 ... 85 °C (-40 ... 185 °F) |
| Relative humidity | 95 % non-condensing |
| Altitude | max. 2000 m |
| Shock resistance | shock type I, shock duration 11 ms, shock amplitude 15 g, number of shocks 18 |
| Vibration resistance | frequency range 10 ... 150 Hz; transition frequency: 57.56 Hz, amplitude/acceleration ± 0.075 mm/1 g; 10 cycles frequency range 5 ... 100 Hz; transition frequency: 13.2 Hz amplitude/acceleration ± 1 mm/0.7 g; 90 minutes at each resonance |
| Damaging gas | designed for operation in environmental conditions acc. to ISA-S71.04-1985, severity level G3 |
| Mechanical specifications | |
| Degree of protection | IP20 when mounted on backplane |
| Connection | removable front connector with screw flange (accessory) wiring connection via spring terminals (0.14 ... 1.5 mm ²) or screw terminals (0.08 ... 1.5 mm ²) |
| Mass | approx. 90 g |
| Dimensions | 16 x 100 x 102 mm (0.63 x 3.9 x 4 inch) |

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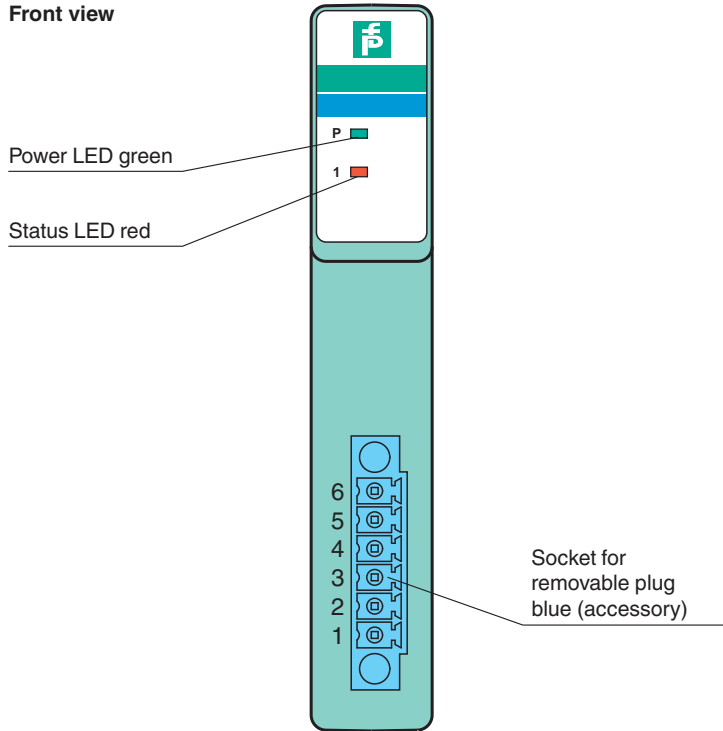
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Technical Data

| Data for application in connection with hazardous areas | | |
|---|---|--|
| EU-type examination certificate | PTB 03 ATEX 2042 X | |
| Marking | Ⓜ II (1)G [Ex ia Ga] IIC Ⓜ II (1)D [Ex ia Da] IIIC Ⓜ I (M1) [Ex ia Ma] I | |
| Input | | |
| Voltage | U_o | 2.7 V |
| Current | I_o | 43 mA |
| Power | P_o | 93 mW (trapezoid characteristic curve) |
| Certificate | PF 08 CERT 1234 X | |
| Marking | Ⓜ II 3 G Ex nA IIC T4 Gc | |
| Galvanic isolation | | |
| Input/power supply, internal bus | safe electrical isolation acc. to EN 60079-11, voltage peak value 375 V | |
| Directive conformity | | |
| Directive 2014/34/EU | EN IEC 60079-0:2018+AC:2020 EN 60079-11:2012 EN 60079-15:2010 | |
| International approvals | | |
| ATEX approval | PTB 03 ATEX 2042 X | |
| UL approval | E106378 | |
| Control drawing | 116-0322 | |
| IECEx approval | | |
| IECEx certificate | IECEx BVS 09.0037X | |
| IECEx marking | Ex nA [ia Ga] IIC T4 Gc [Ex ia Da] IIIC [Ex ia Ma] I | |
| General information | | |
| System information | The module has to be mounted in appropriate backplanes (LB9***) in Zone 2 or outside hazardous areas. Here, observe the corresponding declaration of conformity. For use in hazardous areas (e. g. Zone 2, Zone 22 or Div. 2) the module must be installed in an appropriate enclosure. | |
| Supplementary information | EC-Type Examination Certificate, Statement of Conformity, Declaration of Conformity, Attestation of Conformity and instructions have to be observed where applicable. For information see www.pepperl-fuchs.com . | |

Assembly

Front view



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